SEQUENCE LISTING

<110> Dalton, John
Andrews, Stuart

<120> Vaccine Containing a Thiol Protease

<130> 1181-281

<140> 10/ 620,451
<141> 2003-07-17

<150> US 08/ 424,361
<151> 1995-05-25

<150> PCT/ GB93/ 02172
<151> 1993-10-21

<160> 23

<170> PatentIn version 3.2

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<212> PRT
<213> Fasciola hepatica

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1 5 10 15

Val Lys Asp Gln
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Lys Asp Gln

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Lys Asp Gln

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Lys Asp Gln

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1 5 10 15

Lys Asp Gln

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<213> Trypanosoma cruzi

<400> 6

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Lys Asp Gln

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<211> 23
<212> PRT
<213> Schistosoma mansoni

<400> 7

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Ile Ala Thr Ile Arg Asp Gln
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<212> PRT
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<400> 9

Ala Val Pro Asp Lys Ile Asp Pro Arg Glu Ser Gly Tyr Val Thr
1 5 10 15

<210> 10
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<212> PRT
<213> Gallus gallus

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1 5 10

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Ala Pro Arg Ser Val Asp Trp Arg Glu Lys Gly Tyr Val Thr
1 5 10

<210> 13
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<400> 13

Leu Pro Asp Ser Met Asp Trp Arg Glu Lys Gly Cys Val Thr
1 5 10

<210> 14
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<212> PRT
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<400> 14

Ala Pro Ala Ala Val Asp Trp Arg Ala Arg Gly Ala Val Thr
1 5 10

<210> 15
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<223> succinyl

<220>
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<223> 7-amino-4-methylcoumarin

<400> 16
Leu Leu Val Tyr
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<210> 17
<211> 475
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1 5 10 15

gag gga caa tat atg aaa aac gaa aaa act agt att tca ttc tct gag 96
Glu Gly Gln Tyr Met Lys Asn Glu Lys Thr Ser Ile Ser Phe Ser Glu
20 25 30

caa caa ctg gtc gat tgt agc ggt cct tgg gga aat aat ggt tgc agt 144
Gln Gln Leu Val Asp Cys Ser Gly Pro Trp Gly Asn Asn Gly Cys Ser
35 40 45

ggt gga ttg atg gaa aat gct tac caa tat ttg aaa caa ttt gga ttg 192
Gly Gly Leu Met Glu Asn Ala Tyr Gln Tyr Leu Lys Gln Phe Gly Leu
50 55 60

gaa acc gaa tcc tct tat ccg tac acg gct gtg gaa ggt cag tgt cga 240
Glu Thr Glu Ser Ser Tyr Pro Tyr Thr Ala Val Glu Gly Gln Cys Arg
65 70 75 80

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tac aat agg cag ttg gga gtt gcc aaa gtg acc ggc tac tat act gtg      288
Tyr Asn Arg Gln Leu Gly Val Ala Lys Val Thr Gly Tyr Tyr Thr Val
                85                  90                  95

cat tct ggc agt gag gta gaa ttg aaa aat cta gtc ggt tcc gaa gga      336
His Ser Gly Ser Glu Val Glu Leu Lys Asn Leu Val Gly Ser Glu Gly
            100                 105                 110

cct gcc gcg atc gct gtg gat gtg gaa tct gac ttc atg atg tac agg      384
Pro Ala Ala Ile Ala Val Asp Val Glu Ser Asp Phe Met Met Tyr Arg
        115                 120                 125

agt ggt att tat cag agc caa act tgt tta ccg ttc gct ctg aat cat      432
Ser Gly Ile Tyr Gln Ser Gln Thr Cys Leu Pro Phe Ala Leu Asn His
    130                 135                 140

gca gtc ttg tct gtc ggt tat gga aca cag gat ggt act gnt t             475
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<213> Fasciola hepatica

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<223> The 'Xaa' at location 5 stands for Arg, Ser, Gly, Trp, or Cys.

<220>
<221> misc_feature
<222> (6)..(6)
<223> The 'Xaa' at location 6 stands for Thr, Ala, Pro, or Ser.

<220>
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<223> The 'Xaa' at location 158 stands for Asp, Gly, Ala, or Val.

<400> 18

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1               5                  10                  15

Glu Gly Gln Tyr Met Lys Asn Glu Lys Thr Ser Ile Ser Phe Ser Glu
            20                  25                  30

Gln Gln Leu Val Asp Cys Ser Gly Pro Trp Gly Asn Asn Gly Cys Ser
        35                  40                  45
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Gly Gly Leu Met Glu Asn Ala Tyr Gln Tyr Leu Lys Gln Phe Gly Leu
50 55 60

Glu Thr Glu Ser Ser Tyr Pro Tyr Thr Ala Val Glu Gly Gln Cys Arg
65 70 75 80

Tyr Asn Arg Gln Leu Gly Val Ala Lys Val Thr Gly Tyr Tyr Thr Val
85 90 95

His Ser Gly Ser Glu Val Glu Leu Lys Asn Leu Val Gly Ser Glu Gly
100 105 110

Pro Ala Ala Ile Ala Val Asp Val Glu Ser Asp Phe Met Met Tyr Arg
115 120 125

Ser Gly Ile Tyr Gln Ser Gln Thr Cys Leu Pro Phe Ala Leu Asn His
130 135 140

Ala Val Leu Ser Val Gly Tyr Gly Thr Gln Asp Gly Thr Xaa
145 150 155

<210> 19
<211> 477
<212> DNA
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His Gln Glu Ala Xaa Gly Ser Cys Trp Xaa Phe Ser Thr Thr Gly Ala
1 5 10 15

atg gaa gga cag tat atg aaa aac caa aga act agt att tca tnc tct 96
Met Glu Gly Gln Tyr Met Lys Asn Gln Arg Thr Ser Ile Ser Xaa Ser
20 25 30

gag caa caa ctg gtc gat tgt agc cgt gat ttt ggc aat tat ggt tgt 144
Glu Gln Gln Leu Val Asp Cys Ser Arg Asp Phe Gly Asn Tyr Gly Cys

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                35                  40                  45

aat ggt gga cta atg gaa aat gca tac gaa tat ttg aaa cga ttt gga      192
Asn Gly Gly Leu Met Glu Asn Ala Tyr Glu Tyr Leu Lys Arg Phe Gly
    50                  55                  60

ttg gaa acc gag tct tct tat cct tac agg gct gtg gaa gga caa tgt      240
Leu Glu Thr Glu Ser Ser Tyr Pro Tyr Arg Ala Val Glu Gly Gln Cys
65                  70                  75                  80

cga tac aac gag cag ttg gga gtt gcc aaa gtg act agc tac tat acg      288
Arg Tyr Asn Glu Gln Leu Gly Val Ala Lys Val Thr Ser Tyr Tyr Thr
                85                  90                  95

gta cat tct gga gat gag gta gaa ttg caa aat cta gtc ggt gcc gaa      336
Val His Ser Gly Asp Glu Val Glu Leu Gln Asn Leu Val Gly Ala Glu
            100                 105                 110

gga cct gct gcg gtc gct ttg gat gtg gag tca gac ttc atg atg tac      384
Gly Pro Ala Ala Val Ala Leu Asp Val Glu Ser Asp Phe Met Met Tyr
        115                 120                 125

agg agt ggt att tat cag agc caa act tgt tca ccg gat cgt ttg aac      432
Arg Ser Gly Ile Tyr Gln Ser Gln Thr Cys Ser Pro Asp Arg Leu Asn
    130                 135                 140

cat gga gtg ttg nct gtc gnt tat gga acn cag ggt ggt nct cnc          477
His Gly Val Leu Xaa Val Xaa Tyr Gly Thr Gln Gly Gly Xaa Xaa
145                 150                 155
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<210> 20
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<213> Fasciola hepatica

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<223> The 'Xaa' at location 10 stands for Asp, Gly, Ala, or Val.

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<222> (31)..(31)
<223> The 'Xaa' at location 31 stands for Tyr, Cys, Ser, or Phe.

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<223> The 'Xaa' at location 149 stands for Thr, Ala, Pro, or Ser.

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<223> The 'Xaa' at location 151 stands for Asp, Gly, Ala, or Val.

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<222> (158)..(158)
<223> The 'Xaa' at location 158 stands for Thr, Ala, Pro, or Ser.

<220>
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<222> (159)..(159)
<223> The 'Xaa' at location 159 stands for His, Arg, Pro, or Leu.

<400> 20

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20 25 30

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35 40 45

Asn Gly Gly Leu Met Glu Asn Ala Tyr Glu Tyr Leu Lys Arg Phe Gly
50 55 60

Leu Glu Thr Glu Ser Ser Tyr Pro Tyr Arg Ala Val Glu Gly Gln Cys
65 70 75 80

Arg Tyr Asn Glu Gln Leu Gly Val Ala Lys Val Thr Ser Tyr Tyr Thr
85 90 95

Val His Ser Gly Asp Glu Val Glu Leu Gln Asn Leu Val Gly Ala Glu
100 105 110

Gly Pro Ala Ala Val Ala Leu Asp Val Glu Ser Asp Phe Met Met Tyr
115 120 125

Arg Ser Gly Ile Tyr Gln Ser Gln Thr Cys Ser Pro Asp Arg Leu Asn
130 135 140

His Gly Val Leu Xaa Val Xaa Tyr Gly Thr Gln Gly Gly Xaa Xaa

145 150 155

<210> 21
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<400> 21

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gga caa tat atg aaa aac gaa aaa act agt ntt tca ncc tct gag caa        96
Gly Gln Tyr Met Lys Asn Glu Lys Thr Ser Xaa Ser Xaa Ser Glu Gln
            20                  25                  30

caa ctg gtc gat tgt agc ggt cct tgg gga aat aat ggt tgc agt ggt       144
Gln Leu Val Asp Cys Ser Gly Pro Trp Gly Asn Asn Gly Cys Ser Gly
        35                  40                  45

gga ttg atg gaa aat gct tac caa tat tta aaa caa ttt gga ttg gaa       192
Gly Leu Met Glu Asn Ala Tyr Gln Tyr Leu Lys Gln Phe Gly Leu Glu
    50                  55                  60

acc gaa tcc tct tat ccg tac acg gct gtg gaa ggt cag tgt cga tac       240
Thr Glu Ser Ser Tyr Pro Tyr Thr Ala Val Glu Gly Gln Cys Arg Tyr
65                  70                  75                  80

aat agg cag ttg gga gtt gcc aaa gtg act ggc tac tat act gtg cat       288
Asn Arg Gln Leu Gly Val Ala Lys Val Thr Gly Tyr Tyr Thr Val His
                85                  90                  95

tct ggc agt gag gca gga ttg aaa aat cta gtc ggt tcc gaa gga cct       336
Ser Gly Ser Glu Ala Gly Leu Lys Asn Leu Val Gly Ser Glu Gly Pro
            100                 105                 110

gcc gcg atc gct gtg gat gtg gaa tct gac ttc atg atg tac agg agt       384
Ala Ala Ile Ala Val Asp Val Glu Ser Asp Phe Met Met Tyr Arg Ser
        115                 120                 125

ggt att tat cag anc caa act tgt tta ccg ttc gct ttg aat cat gca       432
Gly Ile Tyr Gln Xaa Gln Thr Cys Leu Pro Phe Ala Leu Asn His Ala
    130                 135                 140
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gtc ttg nct gtc gat tat gga aca cag gat ggt nac ncc c 472
Val Leu Xaa Val Asp Tyr Gly Thr Gln Asp Gly Xaa Xaa
145 150 155

<210> 22
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<212> PRT
<213> Fasciola hepatica

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<223> The 'Xaa' at location 27 stands for Ile, Val, Leu, or Phe.

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<220>
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<222> (133)..(133)
<223> The 'Xaa' at location 133 stands for Asn, Ser, Thr, or Ile.

<220>
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<223> The 'Xaa' at location 147 stands for Thr, Ala, Pro, or Ser.

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<223> The 'Xaa' at location 156 stands for Asn, Asp, His, or Tyr.

<220>
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<400> 22

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20 25 30

Gln Leu Val Asp Cys Ser Gly Pro Trp Gly Asn Asn Gly Cys Ser Gly
35 40 45

Gly Leu Met Glu Asn Ala Tyr Gln Tyr Leu Lys Gln Phe Gly Leu Glu

50 55 60

Thr Glu Ser Ser Tyr Pro Tyr Thr Ala Val Glu Gly Gln Cys Arg Tyr
65 70 75 80

Asn Arg Gln Leu Gly Val Ala Lys Val Thr Gly Tyr Tyr Thr Val His
85 90 95

Ser Gly Ser Glu Ala Gly Leu Lys Asn Leu Val Gly Ser Glu Gly Pro
100 105 110

Ala Ala Ile Ala Val Asp Val Glu Ser Asp Phe Met Met Tyr Arg Ser
115 120 125

Gly Ile Tyr Gln Xaa Gln Thr Cys Leu Pro Phe Ala Leu Asn His Ala
130 135 140

Val Leu Xaa Val Asp Tyr Gly Thr Gln Asp Gly Xaa Xaa
145 150 155

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<213> Fasciola hepatica

<400> 23

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